What Is Claimed Is:

1. An apparatus, comprising:

a first lead, where the first lead includes a right ventricular electrode adapted to be positioned in a right ventricular region;

a second lead, where the second lead includes a first left ventricular electrode and a second left ventricular electrode, the first and second ventricular electrodes adapted to be positioned adjacent a left ventricular region;

an implantable pulse generator, where the first lead and the second lead are coupled to the implantable pulse generator and where the first and second left ventricular electrodes and the right ventricular electrode are coupled to control circuitry within the implantable pulse generator, and wherein the control circuitry includes a pacing output circuit that is programmable to control delivery of pacing pulses between combinations of the first and second left ventricular electrodes in the left ventricular region and the right ventricular electrode in the right ventricular region.

2. The apparatus of claim 1, wherein the first left ventricular electrode and the second left ventricular electrode are pacing/sensing electrodes, and the right ventricular electrode is a defibrillation coil electrode.

3. The apparatus of claim 1, wherein the first left ventricular electrode, the second left ventricular electrode and the right ventricular electrode are pacing/sensing electrodes.

4. The apparatus of claim 1, wherein the second lead includes a third left ventricular electrode, where the third left ventricular electrode is adapted to be positioned adjacent to the left ventricular region.

5. The apparatus of claim 4, wherein the control circuitry is programmable to control delivery of pacing pulses between combinations of the first left ventricular electrode, the second left ventricular electrode, the third left ventricular electrode and the right ventricular electrode.

6. The apparatus of claim 4, wherein the control circuitry includes a right ventricular activity sensor, a left ventricular activity sensor and a switch matrix coupled to both the right ventricular activity sensor and the left ventricular activity sensor, where the control circuitry configures the switch matrix to receive an extended bipolar cardiac signal sensed between one or more of the first, second or third left ventricular electrode and the first right ventricular electrode.

7. The apparatus of claim 4, wherein the implantable pulse generator includes a conductive housing, where the control circuitry is programmable to control delivery of pacing pulses between combinations of the first left ventricular electrode, the second left ventricular electrode, the third left ventricular electrode and the conductive housing.

8. The apparatus of claim 1, wherein the control circuitry includes a right ventricular activity sensor, a left ventricular activity sensor and a switch matrix coupled to both the right ventricular activity sensor and the left ventricular activity sensor, where the control circuitry configures the switch matrix to receive an extended bipolar cardiac signal sensed between one or more of the first and second electrode and the first right ventricular electrode.

9. The apparatus of claim 1, wherein the control circuitry directs the pacing output circuit to deliver pacing pulses between the first left ventricular electrode, the second left ventricular electrode and the right ventricular electrode.

10. The apparatus of claim 1, wherein the first lead further includes a first supraventricular electrode adapted to be positioned in a right atrial region, and where the control circuitry directs the pacing output circuit to deliver pacing pulses between the first left ventricular electrode, the second left ventricular and the first supraventricular electrode.

11. The apparatus of claim 10, wherein the implantable pulse generator includes a conductive housing, where the pacing output circuit controls delivery of pacing pulses between the first left ventricular electrode, the second left ventricular electrode, the first supraventricular electrode and the housing, where the first and second left ventricular electrodes are common and the first supraventricular electrode and the housing are common.

12. The apparatus of claim 1, wherein the implantable pulse generator includes a conductive housing, where the pacing output circuit controls delivery of pacing pulses between the first left ventricular electrode and the conductive housing.

13. The apparatus of claim 1, wherein the implantable pulse generator includes a conductive housing, where the pacing output circuit controls delivery of pacing pulses between the second left ventricular electrode and the conductive housing.

14. An apparatus, comprising:

a first lead, where the first lead includes a first supraventricular electrode adapted to be positioned in a right atrial region;

a second lead, where the second lead includes a first left ventricular electrode and a second left ventricular electrode, the first and second ventricular electrodes adapted to be positioned adjacent a left ventricular region;

an implantable pulse generator, where the first lead and the second lead are coupled to the implantable pulse generator and where the first and second left ventricular

electrodes and the first supraventricular electrode are coupled to control circuitry within the implantable pulse generator, and wherein the control circuitry includes a pacing output circuit that is programmable to control delivery of pacing pulses between combinations of the first and second left ventricular electrodes in the left ventricular region and the first supraventricular electrode in the right atrial region.

15. The apparatus of claim 14, wherein the first left ventricular electrode and the second left ventricular electrode are pacing/sensing electrodes and the first supraventricular electrode is a defibrillation coil electrode.

16. The apparatus of claim 14, wherein the second lead includes a third left ventricular electrode, where the third left ventricular electrode is adapted to be positioned adjacent the left ventricular region.

17. The apparatus of claim 16, wherein the control circuitry is programmable to control delivery of pacing pulses between combinations of the first left ventricular electrode, the second left ventricular electrode, the third left ventricular electrode and the right ventricular electrode.

18. The apparatus of claim 16, wherein the control circuitry includes a right ventricular activity sensor, a left ventricular activity sensor and a switch matrix coupled to both the right ventricular activity sensor and the left ventricular activity sensor, where the control circuitry configures the switch matrix to receive an extended bipolar cardiac signal sensed between one or more of the first and second left ventricular electrodes and the first supraventricular electrode.

19. The apparatus of claim 14, wherein the control circuitry includes a right ventricular activity sensor, a left ventricular activity sensor and a switch matrix coupled to both the right ventricular activity sensor and the left ventricular activity sensor, where

the control circuitry configures the switch matrix to receive an extended bipolar cardiac signal sensed between the first left ventricular electrode and the first supraventricular electrode.

20. The apparatus of claim 14, wherein the control circuitry includes a right ventricular activity sensor, a left ventricular activity sensor and a switch matrix coupled to both the right ventricular activity sensor and the left ventricular activity sensor, where the control circuitry configures the switch matrix to receive an extended bipolar cardiac signal sensed between the second left ventricular electrode and the first supraventricular electrode.

21. The apparatus of claim 14, wherein the control circuitry includes a right ventricular activity sensor, a left ventricular activity sensor and a switch matrix coupled to both the right ventricular activity sensor and the left ventricular activity sensor, where the control circuitry configures the switch matrix to receive an extended bipolar cardiac signal sensed between the first and second left ventricular electrodes and the first supraventricular electrode.

22. The apparatus of claim 14, wherein the control circuitry directs the pacing output circuit to deliver pacing pulses between the first left ventricular electrode and the first supraventricular electrode.

23. The apparatus of claim 14, wherein the first lead further includes a first right ventricular electrode adapted to be positioned in a right ventricular region, and where the control circuitry directs the pacing output circuit to deliver pacing pulses between the first left ventricular electrode and the first right ventricular electrode.

24. The apparatus of claim 14, wherein the control circuitry directs the pacing output circuit to deliver pacing pulses between the second left ventricular electrode and the first

left ventricular electrode.

25. The apparatus of claim 14, wherein the pacing output circuit delivers the pacing pulse between the first left ventricular electrode and the second left ventricular electrode in a left ventricular region and the first supraventricular electrode.

26. The apparatus of claim 14, wherein the implantable pulse generator includes a conductive housing, where the pacing output circuit controls delivery of pacing pulses between the first left ventricular electrode and the conductive housing.

27. The apparatus of claim 14, wherein the implantable pulse generator includes a conductive housing, where the pacing output circuit controls delivery of pacing pulses between the second left ventricular electrode and the conductive housing.

28. The apparatus of claim 27, wherein the first lead further includes a right ventricular electrode adapted to be positioned in a right ventricular region, and where the pacing output circuit controls delivery of pacing pulses between the first left ventricular electrode and the second left ventricular electrode and the right ventricular electrode and the housing of the implantable pulse generator, where the first and second left ventricular electrodes are common and the right ventricular electrode and the housing are common.

29. The apparatus of claim 14, wherein the first lead includes a right ventricular electrode adapted to be positioned in a right ventricular region, and wherein the control circuitry allows for a cardiac signal to be sensed between one of the first and second electrodes and the right ventricular electrode and for pacing pulses to be delivered between both of the first and second electrodes and the first right ventricular electrode.

30. An apparatus, comprising:

a lead, where the lead includes a first left ventricular electrode and a second left

ventricular electrode, the first and second ventricular electrodes adapted to be positioned adjacent a left ventricular region;

an implantable pulse generator, where the lead is coupled to the implantable pulse generator and where the first and second left ventricular electrodes are coupled to control circuitry within the implantable pulse generator, and wherein the implantable pulse generator includes a conductive housing couple to the control circuitry, the control circuitry including a pacing output circuit that is programmable to control delivery of pacing pulses between combinations of the first and second left ventricular electrodes in the left ventricular region and the conductive housing of the implantable pulse generator.

31. The apparatus of claim 30, wherein the control circuitry includes a right ventricular activity sensor, a left ventricular activity sensor and a switch matrix coupled to both the right ventricular activity sensor and the left ventricular activity sensor, where the control circuitry configures the switch matrix to receive an extended bipolar cardiac signal sensed between the first left ventricular electrode and the conductive housing.

32. The apparatus of claim 30, wherein the control circuitry includes a right ventricular activity sensor, a left ventricular activity sensor and a switch matrix coupled to both the right ventricular activity sensor and the left ventricular activity sensor, where the control circuitry configures the switch matrix to receive an extended bipolar cardiac signal sensed between the second left ventricular electrode and the conductive housing.

33. The apparatus of claim 32, wherein the control circuitry includes a right ventricular activity sensor, a left ventricular activity sensor and a switch matrix coupled to both the right ventricular activity sensor and the left ventricular activity sensor, where the control circuitry configures the switch matrix to receive an extended bipolar cardiac signal sensed between the first and second left ventricular electrodes and the conductive housing.

34. The apparatus of claim 30, wherein the lead includes a third left ventricular electrode, where the third left ventricular electrode is adapted to be positioned adjacent the left ventricular region.

35. The apparatus of claim 34, wherein the control circuitry is programmable to control delivery of pacing pulses between combinations of the first left ventricular electrode, the second left ventricular electrode, the third left ventricular electrode and the right ventricular electrode.

36. The apparatus of claim 34, wherein the control circuitry includes a right ventricular activity sensor, a left ventricular activity sensor and a switch matrix coupled to both the right ventricular activity sensor and the left ventricular activity sensor, where the control circuitry configures the switch matrix to receive an extended bipolar cardiac signal sensed between one or more of the first, second and third left ventricular electrodes and the conductive housing.

37. The apparatus of claim 30, wherein the pacing output circuit controls delivery of pacing pulses between the first left ventricular electrode and the conductive housing.

38. The apparatus of claim 30, wherein the pacing output circuit controls delivery of pacing pulses between the second left ventricular electrode and the conductive housing.

39. The apparatus of claim 38, wherein the pacing output circuit controls delivery of pacing pulses between the first and second left ventricular electrodes and the conductive housing.

40. An apparatus, comprising:

a first lead, where the first lead includes a first right ventricular pacing/sensing electrode at a distal end of the first lead and a first right ventricular defibrillation coil

electrode, where both electrodes are adapted to be positioned in a right ventricular region;

an implantable pulse generator, where the first lead is releasably coupled to the implantable pulse generator and where the first right ventricular pacing/sensing electrode and the first right ventricular defibrillation coil electrode are coupled to control circuitry within the implantable pulse generator, and wherein the control circuitry includes a pacing output circuit that controls delivery of pacing pulses from the first right ventricular defibrillation coil electrode to the first right ventricular pacing/sensing electrode in the right ventricular region.

41. A method, comprising:

programming pacing pulses vector between at least one of a first left ventricular electrode and a second left ventricular electrode in a left ventricular region, and a first supraventricular electrode in a right atrial region; and

delivering a pacing pulse according to the programmed pacing pulse vector between at least one of the first left ventricular electrode and the second left ventricular electrode, and the first supraventricular electrode.

42. The method of claim 41, including programming sensing vectors between at least one of the first left ventricular electrode and the second left ventricular electrode and the first supraventricular electrode, and sensing a cardiac signal between at least one of the first left ventricular electrode and the second left ventricular electrode, and the first supraventricular electrode according to the programmed sensing vector.

43. The method of claim 41, including programming pacing pulses vector between at least one of the first left ventricular electrode and the second left ventricular electrode and a conductive housing of an implantable pulse generator, and where delivering the pacing pulse includes delivering the pacing pulse between at least one of the left ventricular electrode and the right ventricular electrode, and the housing according to the

programmed pacing pulse vector.

44. The method of claim 41, wherein programming pacing pulses vector includes programming a pacing pulse vector between at least one of the first left ventricular electrode and the second left ventricular electrode and a first right ventricular electrode in a right ventricular region; and

delivering a pacing pulse according to the programmed pacing pulse vector between at least one of the first left ventricular electrode and the second left ventricular electrode, and the first right ventricular electrode.

45. The method of claim 44, wherein delivering the pacing pulse includes delivering the pacing pulse from the first and second left ventricular electrodes in common to the first right ventricular electrode.

46. The method of claim 44, wherein delivering the pacing pulse includes delivering the pacing pulse between the first left ventricular electrode and the second left ventricular electrode and the first right ventricular electrode and a housing of an implantable pulse generator, where the first and second left ventricular electrodes are common and the first right ventricular electrode and the housing are common.

47. The method of claim 41, where programming pacing pulses vector includes programming the pacing pulse vector between at least one of the first left ventricular electrode, the second left ventricular electrode and a third left ventricular electrode in the left ventricular region, and the first supraventricular electrode in a right atrial region; and

delivering the pacing pulse according to the programmed pacing pulse vector between at least one of the first left ventricular electrode, the second left ventricular electrode, the third left ventricular electrode and the first supraventricular electrode.

48. A method, comprising:

programming pacing pulses vector between at least one of a first left ventricular electrode and a second left ventricular electrode in a left ventricular region, and a right ventricular electrode in a right ventricular region; and

delivering a pacing pulse according to the programmed pacing pulse vector between at least one of the first left ventricular electrode and the second left ventricular electrode, and the right ventricular electrode.

49. The method of claim 48, including programming sensing vectors between at least one of the first left ventricular electrode and the second left ventricular electrode, and the right ventricular electrode, and sensing a cardiac signal between at least one of the first left ventricular electrode and the second left ventricular electrode, and the right ventricular electrode according to the programmed sensing vector.

50. The method of claim 48, including programming pacing pulses vector between at least one of the first left ventricular electrode and the second left ventricular electrode, and a conductive housing of an implantable pulse generator, and where delivering the pacing pulse includes delivering the pacing pulse between at least one of the left ventricular electrode and the right ventricular electrode, and the housing according to the programmed pacing pulse vector.

51. The method of claim 48, wherein programming pacing pulses vector includes programming a pacing pulse vector between at least one of the first left ventricular electrode and the second left ventricular electrode, and a supraventricular electrode in a right atrial region; and

delivering a pacing pulse according to the programmed pacing pulse vector between at least one of the first left ventricular electrode and the second left ventricular electrode, and the supraventricular electrode.

52. The method of claim 51, wherein delivering the pacing pulse includes delivering the pacing pulse between the first and second left ventricular electrodes in common to the supraventricular electrode.

53. The method of claim 51, wherein delivering the pacing pulse includes delivering the pacing pulse between the first left ventricular electrode and the second left ventricular electrode and the supraventricular electrode and a housing of an implantable pulse generator, where the first and second left ventricular electrodes are common and the supraventricular electrode and the housing are common.

54. The method of claim 48, where programming pacing pulses vector includes programming the pacing pulse vector between at least one of the first left ventricular electrode, the second left ventricular electrode and a third left ventricular electrode in the left ventricular region, and the first supraventricular electrode in a right atrial region; and

delivering the pacing pulse according to the programmed pacing pulse vector between at least one of the first left ventricular electrode, the second left ventricular electrode, the third left ventricular electrode and the right ventricular electrode.

55. A method, comprising:

delivering a pacing level pulse from a first ventricular defibrillation electrode as a cathode to a first ventricular pacing/sensing electrode as an anode.

56. The method of claim 55, including positioning the first ventricular defibrillation electrode in a right ventricular region, and the first pacing/sensing electrode in an apex of the right ventricular region.